UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,481	09/11/2000	Donald Adams	Q00-1032-US1	5650

32093 7590 05/19/2004

HANSRA PATENT SERVICES
4525 GLEN MEADOWS PLACE
BELLINGHAM, WA 98226

EXAMINER	
RODRIGUEZ, GLENDA P	

ART UNIT	PAPER NUMBER
2651	

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/659,481	Applicant(s) ADAMS ET AL.	
	Examiner Glenda P. Rodriguez	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,14-27, 29, 30, 35, 36 and 50-89* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,10,18-25,27,29,30,35,36,50-73,75-77,79-81,83-85 and 87-89* is/are rejected.

7)☒ Claim(s) *6,8,14,17,26,74,78,82 and 86* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> > (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 21, 22, 24, 50, 51, 56-58, 73, 75 and 85 are rejected under 35 U.S.C. 102(b) as being anticipated by Ton That (US Patent No. 5, 796, 543).

Regarding Claims 1 and 75, Ton-That teaches a data storage system including data storage media having at least one rotatable recording surface, a method for storing data segments to said recording surface in concentric tracks, comprising the steps of:

> Recording at least one set of data segments onto said recording surface (Col. 7, Line 42-43 and Col. 9, Lines 31-35), each recorded data segment including a start, an end (See. Fig. 4A, which teaches a drawing of the typical data track having a star and an end.), and a rotational phase from that data segment to each of the respective ones of all other data segments in the set, wherein the data segments are recorded with coherent relative rotational phase (Col. 10, Lines 38-45), wherein each segment includes one or more tracks (Col. 10, Lines 38-64).

Regarding Claims 21 and 84, Ton-That teaches a data storage pattern for storing information on a recording surface of a recording media in a storage system, said pattern including at least one set of segments for storing user data in concentric tracks on the

recording surface (Col. 7, Lines 46-47), wherein each segment includes a start, an end (See. Fig. 4A, which teaches a drawing of the typical data track having a start and an end.), and a rotational phase from that segment to each of the respective ones of all other segments in the set such that the segments have coherent relative rotational phases (Col. 10, Lines 38-45).

Regarding Claims 2 and 22, Ton-That teaches all the limitations of Claim 1 and 21, respectively. Ton-That also teaches recording the data segments such that each data segment further has: (i) a relative start phase from the start of the data segment to the start of each of the respective ones of all the other data segments in the set, and (ii) a relative end phase from the end of that data segment to each of the respective ones of all other data segments are recorded with coherent relative start phases and coherent end phases (Col. 10, Lines 38-45 and Lines 55-57. If the data is written coherently from track to track, it is inherent that all tracks have a coherent start and end phase.).

Regarding Claims 4, 24 and 85, Ton-That teach all the limitations of Claims 2, 22 and 84, respectively. Ton-That also teach the rotational phases from that data segment to respective ones of all other data segments in the set comprise the rotational phases from the end of that data segment to the start of the respective ones of all other data segments in the set (Col. 10, Lines 38-45 and Lines 55-57. If the data is written coherently from track to track, it is inherent that all tracks comprise a rotational phase at the end of the data segment to the start phase of the successive data segment to be coherent with respect to the other data segments in the set.).

Claim 50 has limitations similar to those treated in the above rejection(s), and are met by the references as discussed above. Claim 50 however also recites the following limitations... "A servo circuit for controlling an actuator to position the transducer assembly at segments on the

recording surface (Pat. No. 5, 796, 543; Col. 5, Lines 11-15); A controller adapted for transferring data to and from said segments on the recording surface wherein: During data storing operations in each segment, the controller controls the transducer via the servo circuit to record data in that segment, such that the data stored on the recording surface with coherent phase (Col. 10, Lines 37-42) and during data retrieval operations in each segment, the controller controls the transducer to retrieve data from each segment (Col. 9, Lines 19-26)".

Regarding Claim 51, Ton-That teaches all the limitations of Claim 50. Ton-That also teaches recording the data segments such that each data segment further has: (i) a relative start phase from the start of the data segment to the start of each of the respective ones of all the other data segments in the set, and (ii) a relative end phase from the end of that data segment to each of the respective ones of all other data segments are recorded with coherent relative start phases and coherent end phases (Col. 10, Lines 38-45 and Lines 55-57. If the data is written coherently from track to track, it is inherent that all tracks have a coherent start and end phase.).

Regarding Claims 56, Ton-That teach all the limitations of Claim 50. Ton-That also teach wherein each data segment includes one or more tracks (Col. 10, Lines 55-57.).

Regarding Claims 57 and 73, Ton-That teaches al the limitations of Claims 56 and 1, respectively. Ton-That also teach wherein the data segments are offset by a predetermined skew angle (Col. 2, Lines 38-42), wherein said predetermined skew angle is selected to minimize rotational latency as the transducer is positioned over adjacent tracks within a data segment (Col. 13, Lines 38-50. Ton-That teaches that the outer diameter and inner diameter have a predetermined skew that depending on where the transducer will be positioned, that skew value will be chosen to prevent micro jogging by the transducer.).

Regarding Claims 58, Ton-That teaches all the limitations of Claim 50. Ton-That further teach recording the data segments such that each track includes one or more data segments (See Fig. 4A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That (US Patent No. 5, 796, 543) in view of Gaertner et al. (US Patent No. 6, 445, 531). Ton-That teaches all the limitations of Claims 2 and 22, respectively. Ton-That further teaches wherein each data segment in the set consists of a relative start and an end (See Fig. 4A). Ton-That fail to teach that a rotational phases of that data segment to respective ones of all other data segments in the set are predetermined. However, this feature is well known in the art as disclosed by Gaertner et al., wherein it teaches that the rotational phase of each data segment is predetermined (Pat. No. 6, 445, 531; Col. Col. 4, Lines 55-61). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to have those parameters in its seek profile in order to determine the optimum seek profile.

Claim 5 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That (US Patent No. 5, 796, 543) in view of Mento et al. (US Patent No. 5, 483, 393). Ton-That teaches all the limitations of Claims 4 and 24, respectively. Ton-That fail to teach that for each data segment in the set, the rotational phase for that data segment relative to each of the other data

segments in the set has one of a limited number of predetermined values. However, this feature is well known in the art as disclosed by Mento et al., wherein it teaches that each sector in the disk has a predetermined angular distance (or rotational phase) relative to the other sectors, all these values stored in a Timing and Control circuit (Pat. No. 5, 483, 393; Col. 6, Lines 35-48 and Lines 48-52. Because the values are determined and stored in the circuit, thus making the values limited and already predetermined in the system.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the servo sectors having a predetermined rotational phase in order to better control and provide adequate timing to the circuit elements in the disc.

Claims 7, 20, 27 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That (US Patent No. 5, 796, 543) in view of Kawakami et al. (US Patent No. 4, 864, 435).

Regarding Claims 7, 27 and 87, Ton-That teaches all the limitations of Claims 4 and 24, respectively. Ton-That fails to teach that the data segments are recorded such that for each data segment in the set the relative rotational phases from that data segment to respective ones of the other data segments are the same. However, this feature is well known in the art as disclosed by Kawakami et al., wherein it teaches a magnetic discs wherein the rotational phases amongst the tracks are the same (Pat. No. 4, 864, 435; Col. 17, Lines 25-29). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the tracks to have the same rotational phase because the tracks can be detected by the phase sync signal when synchronously detected.

Regarding Claim 20, Ton-That teaches all the limitations of Claim 1. Kawakami et al. further teach the rotational phases of that data segments to respective ones of all the other data

segments in the set are predetermined independent of the start or end of that data segment (Pat. No. 4, 864, 435; Col. 17, Lines 25-29. If all the data segments have the same rotational phase, and then the rotational phases are predetermined and therefore independent of each other because each data segment is known.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the tracks to have the same rotational phase because the tracks can be detected by the phase sync signal when synchronously detected.

Claims 9, 10, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Reddy et al. (US Patent No. 6, 295, 176).

Regarding Claim 9 and 29, Ton-That teaches al the limitations of Claim 1 and 21, respectively. Ton-That et al. fail to teach wherein each data segments in the data track are offset by a predetermined skew angle. However, this feature is well known in the art as disclosed by Reddy et al., wherein it teaches that the servo skew in each track is predetermined according to the zone wherein the tracks are located (Pat. No.6295176; Col. 13, Lines 42-47.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to be able to have a known skew angle in order to accommodate the write head to the read head when performing writing operations.

Regarding Claims 10 and 30, Ton-That and Reddy et al. teach all the limitations of Claims 9 and 29, respectively. Ton-That further teaches a data storage media with a spindle motor (Col. 6, Line 26), a data transducer assembly positionable at concentric data track locations on the recording media by an actuator controlled by a servo circuit (Col. 5, Lines 11-18), and wherein a predetermined skew angle is selected to minimize rotational latency as the

transducer is positioned over adjacent tracks within a data segment (Col. 13, Lines 38-50. Ton-That teaches that the outer diameter and inner diameter have a predetermined skew that depending on where the transducer will be positioned, that skew value will be chosen to prevent micro jogging by the transducer.).

Claims 15, 16, 18, 35, 79, 80 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That (US Patent No. 5, 796, 543) in view of Dunphy, Jr. et al. (US Patent No. 5, 077, 736).

Regarding Claims 15, 35 and 79, Ton-That teaches all the limitations of Claims 1, 21 and 75, respectively. Ton-That fails to teach wherein receiving one or more incoming data streams and partitioning each incoming data stream into data segments before recording on the media. However, this feature is well known in the art as disclosed by Dunphy et al., wherein it teaches a disk drive memory with a control module that divides the receiving one data stream into N data segments (Pat. No. 5, 077, 736; Col. 4, Lines 3-6). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention to receive the data and divide them into data segments in order to be able to distribute the data into other disks if a particular disk fails.

Regarding Claim 16 and 80, Ton-That and Dunphy et al. teach all the limitations of Claims 15 and 79, respectively. Dunphy et al. also teach that the data segments received are partitioned in equal size (Pat. No. 5, 077, 736; Col. 15, Lines 51-53). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to receive the data and divide them into equal sized data segments in order to be able to distribute the data into other disks if a particular disk fails.

Claims 18 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That and Dunphy et al. as applied to claim 15 above, and further in view of Watanabe et al.(US Patent No. 5, 907, 408). Ton-That and Dunphy et al. teach all the limitations of Claim 15. Ton-That and Dunphy et al. fails to teach reading the recorded data segments from the storage media and reformulates it into a signal. However, this feature is well known in the art as disclosed by Watanabe et al., wherein it teaches reading a data segment and outputting a signal from the data read (Pat. No. 5, 907, 408; Col. 39, Lines 6-11.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention into reformulating the data segment into a signal in order to be in a manner that could be further processed by the preamplifier and the demodulator during reproduction.

Claims 19, 36, 83 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That (US Patent No. 5, 796, 543) in view of Suzuki (US Patent No. 6, 208, 479). Ton-That teach all the limitations of Claim 1, 21, 75 and 84, respectively. Ton-That fails to teach recording the data segments on the storage media so as to obtain a deterministic data transfer rate to/from the data storage media. However, this feature is well known in the art as disclosed by Suzuki, wherein it teaches a read write circuit that has a clock coupled to the circuit that determines the read/write transfer rates when performing read/writing operations (Pat. No. 6, 208, 479; Col. 2, Lines 31-34). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to be able to determine the transfer rate in order to adequately provide a timing signal to synchronize the data with the read/write circuits.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Gaertner et al. (US Patent No. 6, 445, 531). Ton-That teaches all the limitations of Claim 51. Ton-That further teaches wherein each data segment in the set consists of a relative start and an end (See Fig. 4A). Ton-That fail to teach that a rotational phases of that data segment to respective ones of all other data segments in the set are predetermined. However, this feature is well known in the art as disclosed by Gaertner et al., wherein it teaches that the rotational phase of each data segment is predetermined (Pat. No. 6, 445, 531; Col. Col. 4, Lines 55-61). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to have those parameters in its seek profile in order to determine the optimum seek profile.

Claims 53, 54, 59 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Mento et al. (US Patent No. 5, 483, 393).

Regarding Claims 53 and 59, Ton-That teaches all the limitations of Claims 51 and 58, respectively. Ton-That fail to teach that for each data segment in the set, the rotational phase for that data segment relative to each of the other data segments in the set has one of a limited number of predetermined values. However, this feature is well known in the art as disclosed by Mento et al., wherein it teaches that each sector in the disk has a predetermined angular distance (or rotational phase) relative to the other sectors, all these values stored in a Timing and Control circuit (Pat. No. 5, 483, 393; Col. 6, Lines 35-48 and Lines 48-52). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the servo sectors having a predetermined rotational phase in order to better control and provide adequate timing to the circuit elements in the disc.

Regarding Claims 54 and 76, Ton-That and Mento et al. teach all the limitations of Claim 53 and 75, respectively. Mento et al. further teach wherein the step of recording the data segments further includes the steps of recording the data segments such that for each data segment in the set: the relative rotational phases from that data segment to respective ones of a first subset of the data segments in the set have another of said predetermined values (Pat. No. 5, 483, 393; Col. 6, Lines 35-48 and Lines 48-52. Mento et al. teach that each sector has a predetermined angular distance between each sector, and all these values are stored in a Timing and Control circuit. It would have been obvious that each sector or data segments have their own predetermined values depending on the area on the disk wherein each sector is located.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the servo sectors having a predetermined rotational phase in order to better control and provide adequate timing to the circuit elements in the disc.

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That and Mento et al., as applied to claim 53 above, and further in view of Kawakami et al. (US Patent No. 4, 864, 435). Ton-That, Joan et al. and Mento et al. teach all the limitations of Claim 53. Ton-That fails to teach that the data segments are recorded such that for each data segment in the set the relative rotational phases from that data segment to respective ones of the other data segments are the same. However, this feature is well known in the art as disclosed by Kawakami et al., wherein it teaches a magnetic discs wherein the rotational phases amongst the tracks are the same (Pat. No. 4, 864, 435; Col. 17, Lines 25-29). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the tracks

to have the same rotational phase because the tracks can be detected by the phase sync signal when synchronously detected.

Claims 60, 77 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Hull et al. (US Patent No. 5, 596, 196). Ton-That teach all the limitations of Claim 50, 75 and 84, respectively. Ton-That further teach that each track includes the same number of segments in the disk (Pat. No., 5, 796, 543; Col. 9, Lines 38-42. Ton-That teaches that there are three data segments per track and in each revolution there are 88 data segments, 88 servo wedges and 88 data sectors.). Ton-That fails to teach that the zones are recorded in a concentric manner. However, this feature is well known in the art as disclosed by Hull et al., wherein it teaches data being recorded in the disc in concentric zones (Pat. No. 5, 596, 196; Col. 3, Lines 12-18). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the disk to have concentric zones in order for the disk to achieve constant data density in a disk.

Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Kawakami et al. (US Patent No. 4, 864, 435). Ton-That teach all the limitations of Claim 50. Ton-That further teaches the rotational phases of that data segments to respective ones of all the other data segments in the set are predetermined independent of that data segment (Pat. No. 4, 864, 435; Col. 17, Lines 25-29. If all the data segments have the same rotational phase, it is obvious that it is predetermined.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to the tracks to have the same rotational phase because the tracks can be detected by the phase sync signal when synchronously detected

Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Suzuki (US Patent No. 6, 208, 479). Ton-That teach all the limitations of Claim 50. Ton-That fails to teach recording the data segments on the storage media so as to obtain a deterministic data transfer rate to/from the data storage media. However, this feature is well known in the art as disclosed by Suzuki, wherein it teaches a read write circuit that has a clack coupled to the circuit that determines the read/write transfer rates when performing read/writing operations (Pat. No. 6, 208, 479; Col. 2, Lines 31-34). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to be able to determine the transfer rate in order to adequately provide a timing signal to synchronize the data with the read/write circuits.

Claims 63-66 and 68-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That in view of Gaertner et al. (US Patent No. 6, 445, 531).

Regarding Claim 63, Ton-That teach all the limitations of Claim 50. Ton-That further teach the use of a servo circuit that commands the actuator when performing seek operations (Pat. No. 5, 796, 543; Col. 5, Lines 14-16 and Col. 8, Lines 12-14). Ton-That fail to teach a seek profile based on the seek distance and the seek time based on the rotational phase. However, this feature is well known in the art as disclosed by Gaertner et al., wherein it teaches a seek profile based on the distance between the target track and destination track and the seek time based on the phase difference between tracks (Pat. No. 6, 445, 531; Col. Col. 6, Lines 1-4 and Lines 60-67). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to use those parameters to determine the seek profile in order to increase access time from present track to destination track.

Regarding Claim 64, Ton-That and Gaertner et al. teach all the limitations of Claim 63. Gaertner further teach constraints such that: (1) each seek operation is completed at the expiration of the respective seek time, and (2) for at least one set of seek distance, the respective seek times are predetermined (Pat. No. 6, 445, 531; See Fig. 2, Element 440). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to have those parameters in its seek profile in order to determine the optimum seek profile.

Regarding Claim 65, Ton-That and Gaertner et al. teach all the limitations of Claim 64. Gaertner et al. further teach wherein that for one present track to a destination track, they calculate many seek profiles within a predetermined time (Pat. No. 6, 445, 531; Col. 3, Lines 28-40). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to have those parameters in its seek profile in order to determine the optimum seek profile.

Regarding Claim 66, Ton-That, Gaertner et al. teach all the limitations of Claim 64. Gaertner et al. further teach wherein a loop-up table that stores velocity profiles according to a seek profile determined (Col. 8, Lines 21-36). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to have those parameters in its seek profile in order to determine the optimum seek profile.

Regarding Claim 68, Ton-That and Gaertner et al. teach all the limitations of Claim 64. Gaertner et al. further teach wherein a seek profile based on the distance between the target track and destination track and the seek time based on the phase difference between tracks (Pat. No. 6, 445, 531; Col. Col. 6, Lines 1-4 and Lines 60-67). It would have been obvious to a person of

ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to have those parameters in its seek profile in order to determine the optimum seek profile.

Regarding Claim 69, Ton-That and Gaertner et al. teach all the limitations of Claim 64. Gaertner et al. further teach wherein a seek operation is based on a rotation time from the end of the starting segment to the start of the destination segment (Pat. No. 6, 445, 531; Col. Col. 6, Lines 1-4 and Lines 60-67, Col. Col. 11, Lines 25-32 and Lines 51-54 and Col. 11, Line 66 to Col. 12, Line 7). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to determine the fastest seek time profile.

Regarding Claim 70, Ton-That and Gaertner et al. teach all the limitations of Claim 63. Ton-That further teaches wherein each segment in the set has a relative start, end and rotational phase are predetermined (Col. 10, Lines 38-45 and Lines 55-57. If the data is written coherently from track to track, it is inherent that all tracks comprise a rotational phase at the end of the data segment to the start phase of the successive data segment to be coherent with respect to the other data segments in the set.).

Regarding Claim 71, Ton-That and Gaertner et al. teach all the limitations of Claim 63. Ton-That and Mento et al. fail to teach wherein further comprising means for receiving one or more incoming data streams and partitioning each incoming data stream into data segments for storage in the storage device. However, this feature is well known in the art as disclosed by Dunphy, Jr. et al., wherein it teaches a disk drive memory with a control module that divides the receiving data streams into data segments (Pat. No. 5, 077, 736; Col. 4, Lines 3-6). It would

have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention to receive the data and divide them into data segments in order to be able to distribute the data into other disks if a particular disk fails.

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That. and Gaertner et al. as applied to claim 54 above, and further in view of Tam et al. (US Patent No. 5, 412, 809). Ton-That and Gaertner et al. teach all the limitations of Claim 54. Ton-That and Gaertner et al. fail to teach wherein a controller further obtains an actuator current level and transducer motion based in the seek time and distance. However, this feature is well known in the art as disclosed by Tam et al., wherein it teaches a current controller for providing a drive current to the actuator assembly is determined based on a seek profile to effect the new access time and positions specified (Pat. No. 5, 412, 809; Col. 11, Line 62 to Col. 12, Line 8). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order for the medium to set the current according to the seek time specified by the user.

Claim 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ton-That and Gaertner et al. as applied to claim 71 above, and further in view of Price et al. (US Patent No. 6, 384, 998). Ton-That and Mento et al. and teach all the limitations of Claim 71. Ton-That and Mento et al. fail to teach reading the recorded data segments from the storage media and reformulates it into a signal. However, this feature is well known in the art as disclosed by Price et al., wherein it teaches that when data segments are read from the medium it reformulates it into a stream of data (Pat. No. 6, 384, 998; Col. 5, Lines 33-35). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Ton-That's invention in order to be

able to read the data segments and convert these segments into streams in order to read the data in the disk.

Allowable Subject Matter

Claims 6, 8, 14, 17, 26, 74, 78, 82 and 86 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding Claims 6, 26, 82 and 86, the primary reason for allowable subject matter is the limitation wherein the relative rotational phases from that segment to respective ones of a first subset of predetermined values and the relative rotational phase from that segment second subset of the segments in the set of another predetermined values.

Regarding Claim 8, the primary reason for allowable subject matter is the limitation wherein the rotational phase from one data segment to other data segment is selected as a function of the size of the data segments.

Regarding Claim 14 and 78, the primary reason for allowable subject matter is the limitation wherein the segments are recorded so as to obtain a nearly constant data storage transfer rate when transferring data and/or from the segments.

Regarding Claim 17, the primary reason for allowable subject matter is the limitation wherein each data segment including one or more tracks in size.

Regarding Claim 74, the primary reason for allowable subject matter is the inclusion of wherein the rotational phase is $R = 360 - (N-1) \times \alpha$.

Response to Arguments

Applicant's arguments filed 2/23/2004 have been fully considered but they are not persuasive. Claims 1-10, 14-27, 29, 30, 35, 36, 50-89 are rejected in view of Ton-That. Applicant argues that Ton-That does not teach "the data segments are recorded with coherent relative rotational phases". Examiner cannot concur with the Applicant because in Col. 10, Lines 38-64 in Ton-That teaches that the tracks are phase coherent from track to track throughout the radial extent of the sector in the disk (Col.. 10, Lines 39-42). Therefore, Ton-That does teach the phase coherent that is relative to the rotational phases of the disk. Thus, the rejection of the Claims stands.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gpr
May 6, 2004.

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600